CLAIMS:

What is claimed is:

1.   A method for generating task-specific code for pattern recognition, the method

5   comprising:

        receiving task-specific input system data of a pattern recognition system; and

        generating task-specific code for the pattern recognition system based on the task-

specific input system data.

10   2.   The method of claim 1, wherein the pattern recognition system performs speech

recognition.

3.   The method of claim 2, wherein the task-specific input system data includes one

of a language model, an acoustic model, a front-end for computing feature vectors, and

15   information related to speaker adaptation.

4.   The method of claim 3, wherein the acoustic model includes Gaussians.

5.   The method of claim 3, wherein the language model is represented as a Hidden

20   Markov Model.

6.   The method of claim 3, wherein the acoustic model is represented as a Hidden

Markov Model.

25   7.   The method of claim 1, further comprising:

        compiling the task-specific code to form a decoder program.

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8. The method of claim 7, further comprising:

profiling the decoder program to form a profile; and

determining whether the decoder program is optimized.

5 9. The method of claim 8, further comprising:

responsive to the decoder program not being optimized, automatically modifying

and recompiling the decoder program based on the profile.

10. The method of claim 7, wherein the step of compiling the task-specific code

10 includes compiling the task-specific code in several parts corresponding to several

modules of the pattern recognition system and assembling the compiled code before

execution.

11. A computer program product, in a computer readable medium, for generating

15 task-specific code for pattern recognition, the computer program product comprising:

instructions for receiving task-specific input system data of a pattern recognition

system; and

instructions for generating task-specific code for the pattern recognition system

based on the task-specific input system data.

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12. The computer program product of claim 11, wherein the pattern recognition

system performs speech recognition.

13. The computer program product of claim 12, wherein the task-specific input

25 system data includes one of a language model, an acoustic model, a front-end for

computing feature vectors, and information related to speaker adaptation.

14. The computer program product of claim 11, further comprising:

instructions for compiling the task-specific code to form a decoder program.

15. The computer program product of claim 14, further comprising:

instructions for profiling the decoder program to form a profile; and

instructions for determining whether the decoder program is optimized.

16. The computer program product of claim 15, further comprising:

instructions, responsive to the decoder program not being optimized, for automatically modifying and recompiling the decoder program based on the profile.

17. An apparatus for generating task-specific code for pattern recognition, the method comprising:

a code generator, wherein the code generator receives task-specific input system data of a pattern recognition system and generates task-specific code for the pattern recognition system based on the task-specific input system data; and

a compiler, wherein the compiler compiles the task-specific code to form a decoder program for the pattern recognition system.

18. The apparatus of claim 17, wherein the pattern recognition system performs speech recognition.

19. The apparatus of claim 18, wherein the task-specific input system data includes one of a language model, an acoustic model, a front-end for computing feature vectors, and information related to speaker adaptation.

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20. The apparatus of claim 17, further comprising:

a profile, wherein the profiler profiles the decoder program to form a profile and determines whether the decoder program is optimized.